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EXAMINER

NGUYEN, HOAN C

ART UNIT PAPER NUMBER

2871

DATE MAILED: 12/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/815,999

Applicant(s)

KITSON ET AL.

Examiner

HOAN C. NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12, 15-16 and 18-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 24 October 2002 has been entered.

### ***Claim Objections***

Claim 15 is objected to because of the following informalities: the claim of a method should not depend on the claim of device. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-8, 10-12, 15-16 and 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Yasushi (JP5088177).

Yasushi teaches a liquid crystal device comprising:

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- a first cell wall and a second cell wall enclosing a layer of liquid crystal material;
- electrodes for applying an electric field across said liquid crystal material; and
- a surface alignment structure integrated onto an inner surface of said first cell wall providing a desired alignment to molecules of said liquid crystal material,

wherein

- said surface alignment structure comprises one of a random or pseudorandom two dimensional array of upstanding features that are at least one of shaped and orientated to produce said desired alignment.
- the geometry and spacing of the features is such as to cause the liquid crystal material to adopt a locally planar or tilted planar alignment.
- the inner surface of the second cell wall is treated to produce a locally homeotropic alignment of the liquid crystal material, whereby the cell functions in a hybrid aligned nematic mode.
- the inner surface of the second cell wall is treated to produce a locally planar or tilted planar alignment of the liquid crystal material substantially at right angles to the alignment direction on the first cell wall, whereby the cell functions in a TN or STN mode.
- the geometry and spacing of the features is such as to cause the liquid crystal material to adopt a locally homeotropic alignment.
- the features are shaped and/or orientated so as to produce a substantially uniform planar or tilted planar alignment of the liquid crystal director in a single azimuthal direction.

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- the features are shaped and/or orientated so as to produce a substantially uniform planar or tilted planar alignment of the liquid crystal director in a plurality of azimuthal directions.
- the features comprise posts which are tilted with respect to the normal to the plane of the first cell wall.
- the features are of different height, different shape, different tilt and/or different orientation in different regions of the device.
- tilt angle and orientation of the posts are uniform throughout the device.
- a wall and an alignment surface microstructure on one surface thereof for aligning the director of a liquid crystal material, the said microstructure comprising a random or pseudorandom two dimensional array of features which are shaped and/or orientated to produce the desired alignment.

In regard to claim 15, Yasushi teaches a method of manufacturing a liquid crystal device comprising securing a first cell wall to a second cell wall, at least one of the cell walls having an electrode structure thereon, so as to produce a cell having spaced apart cell walls the inner surfaces of which each carry at least one electrode structure; filling the cell with a liquid crystal material, and sealing the cell.

2. Claims 1-8, 10-12, 15-16 and 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiroshi et al. (JP10148827).

Hiroshi et al. teach a liquid crystal device comprising:

- a first cell wall and a second cell wall enclosing a layer of liquid crystal material;

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- electrodes for applying an electric field across said liquid crystal material; and
- a surface alignment structure integrated onto an inner surface of said first cell wall providing a desired alignment to molecules of said liquid crystal material,

wherein

- said surface alignment structure comprises one of a random or pseudorandom two dimensional array of upstanding features that are at least one of shaped and orientated to produce said desired alignment.
- the geometry and spacing of the features is such as to cause the liquid crystal material to adopt a locally planar or tilted planar alignment.
- the inner surface of the second cell wall is treated to produce a locally homeotropic alignment of the liquid crystal material, whereby the cell functions in a hybrid aligned nematic mode.
- the inner surface of the second cell wall is treated to produce a locally planar or tilted planar alignment of the liquid crystal material substantially at right angles to the alignment direction on the first cell wall, whereby the cell functions in a TN or STN mode.
- the geometry and spacing of the features is such as to cause the liquid crystal material to adopt a locally homeotropic alignment.
- the features are shaped and/or orientated so as to produce a substantially uniform planar or tilted planar alignment of the liquid crystal director in a single azimuthal direction.

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- the features are shaped and/or orientated so as to produce a substantially uniform planar or tilted planar alignment of the liquid crystal director in a plurality of azimuthal directions.
- the features comprise posts which are tilted with respect to the normal to the plane of the first cell wall.
- the features are of different height, different shape, different tilt and/or different orientation in different regions of the device.
- tilt angle and orientation of the posts are uniform throughout the device.
- a wall and an alignment surface microstructure on one surface thereof for aligning the director of a liquid crystal material, the said microstructure comprising a random or pseudorandom two dimensional array of features which are shaped and/or orientated to produce the desired alignment.

In regard to claim 15, Hiroshi et al. teach a method of manufacturing a liquid crystal device comprising securing a first cell wall to a second cell wall, at least one of the cell walls having an electrode structure thereon, so as to produce a cell having spaced apart cell walls the inner surfaces of which each carry at least one electrode structure; filling the cell with a liquid crystal material, and sealing the cell.

3. Claims 1-8, 10-12, 15-16 and 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Masahiro (JP2211422).

Masahiro teaches a liquid crystal device comprising:

- a first cell wall and a second cell wall enclosing a layer of liquid crystal material;

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- electrodes for applying an electric field across said liquid crystal material; and
- a surface alignment structure integrated onto an inner surface of said first cell wall providing a desired alignment to molecules of said liquid crystal material,

wherein

- said surface alignment structure comprises one of a random or pseudorandom two dimensional array of upstanding features that are at least one of shaped and orientated to produce said desired alignment.
- the geometry and spacing of the features is such as to cause the liquid crystal material to adopt a locally planar or tilted planar alignment.
- the inner surface of the second cell wall is treated to produce a locally homeotropic alignment of the liquid crystal material, whereby the cell functions in a hybrid aligned nematic mode.
- the inner surface of the second cell wall is treated to produce a locally planar or tilted planar alignment of the liquid crystal material substantially at right angles to the alignment direction on the first cell wall, whereby the cell functions in a TN or STN mode.
- the geometry and spacing of the features is such as to cause the liquid crystal material to adopt a locally homeotropic alignment.
- the features are shaped and/or orientated so as to produce a substantially uniform planar or tilted planar alignment of the liquid crystal director in a single azimuthal direction.



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- the features are shaped and/or orientated so as to produce a substantially uniform planar or tilted planar alignment of the liquid crystal director in a plurality of azimuthal directions.
- the features comprise posts which are tilted with respect to the normal to the plane of the first cell wall.
- the features are of different height, different shape, different tilt and/or different orientation in different regions of the device.
- tilt angle and orientation of the posts are uniform throughout the device.
- a wall and an alignment surface microstructure on one surface thereof for aligning the director of a liquid crystal material, the said microstructure comprising a random or pseudorandom two dimensional array of features which are shaped and/or orientated to produce the desired alignment.

In regard to claim 15, Masahiro teaches a method of manufacturing a liquid crystal device comprising securing a first cell wall to a second cell wall, at least one of the cell walls having an electrode structure thereon, so as to produce a cell having spaced apart cell walls the inner surfaces of which each carry at least one electrode structure; filling the cell with a liquid crystal material, and sealing the cell.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yasushi (JP5088177) as applied to claim 1.

It is conventional that a liquid crystal device further including an analyser and a polariser mounted on the cell walls for improving display image.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a liquid crystal device as Yasushi disclosed with including an analyser and a polariser mounted on the cell walls for improving display image.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroshi et al. (JP10148827) as applied to claim 1.

It is conventional that a liquid crystal device further including an analyser and a polariser mounted on the cell walls for improving display image.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a liquid crystal device as Hiroshi et al. disclosed with including an analyser and a polariser mounted on the cell walls for improving display image.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masahiro (JP2211422) as applied to claim 1.

It is conventional that a liquid crystal device further including an analyser and a polariser mounted on the cell walls for improving display image. Therefore, it would

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have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a liquid crystal device Masahiro disclosed with including an analyser and a polariser mounted on the cell walls for improving display image.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (703) 306-0472. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

HOAN C. NGUYEN  
Examiner  
Art Unit 2871

chn  
December 23, 2002

